

GOVERNMENT/INDUSTRY AERONAUTICAL CHARTING FORUM
Instrument Procedures Subgroup
October 27-28, 1997
HISTORY RECORD

FAA Control # 97-02-189

SUBJECT: IFR Departure Minimum Turning Altitude Requirement

BACKGROUND/DISCUSSION: TERPs instrument departure criteria presume that turns in instrument departure procedures will be made at 400 feet, above DER elevation, unless a higher turning altitude is specified in the procedure. Further, in some very unusual cases, TERPs, Chapter 12 criteria permit turns below 400 feet provided a mandatory takeoff minimum of at least 400-foot ceiling, and 1 mile visibility, is published and the procedure is annotated "turn as soon as practicable." A recent instance at DFW pointed out that ATC personnel need to be better trained in pilot responsibilities as to minimum turning altitude in IFR operations. Further, ALPA believes that mandatory "early turns" below 400 feet are unsafe for air carrier operations.

RECOMMENDATION: Directives to ATC personnel, including Handbook 7110.65, need to clarify the 400-foot minimum turning requirement. Although this part of this issue probably belongs before ATPAC as well, it is also appropriate for this Forum. Further, air carrier takeoff procedures and minimums should not be authorized where a turn below 400 feet is required.

COMMENTS: This proposal affects Orders 8260.3B, 8260.19C, AFS-200 directives to air carriers, and ATC Handbook 7110.65.

Submitted by Captain Tom Young, Chairman
Charting and Instrument Procedures Committee

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October 1, 1997

INITIAL DISCUSSION (Meeting 97-02): Tom Young presented this issue on behalf of ALPA recommending clarification of ATC directives pertaining to the 400-foot minimum turning altitude (above DER elevation) during departure operations in instrument conditions. ALPA believes, based on recent incidents, that ATC personnel issue instructions that require air carrier operators to turn prior to reaching an altitude 400 feet or greater above DER, and that these early turns are unsafe. It was recommended that ALPA and AFS-420 co-lead an effort with representatives of ATO-120, AFS-800, and AFS 200 to develop a joint response on the issue for presentation at the next meeting.

ACTION: AFS-420 and ALPA.

MEETING 98-01: There is consternation on this matter. It is believed this is an Ops Spec rather than a TERPS restriction. Coordination continues with further update planned for the next forum. Background is that ALPA has requested clarification of ATC directives pertaining to the 400-foot minimum turning altitude (above DER elevation) during departure operations in instrument conditions. ALPA believes, based on recent incidents, that ATC personnel issue instructions that **require** air carrier operators to turn prior to reaching an altitude 400 feet or greater above DER, and that these early turns are unsafe. ALPA, AFS-420, ATO-120, AFS-800, and AFS 200 representatives under the co-leadership of AFS-420 and ALPA are to coordinate and develop a joint response on this issue for presentation at the next meeting.

Action: AFS-420 and ALPA.

MEETING 98-02: Howard Swancy, AFS-420, briefed that this issue needs to be worked in a joint environment (AFS, AAT, charting agents and pilot unions). Jim Terpstra, Jeppesen, noted that all FMS databases are coded to turn at 400' above airport elevation. If early turns, below 400', are required, then this needs to be stated so that data bases may be coded accordingly. Wally Roberts, ALPA, noted that some new generation aircraft (Boeing 767/777) aircrews will not turn below 400'. Mike Werner, AVN-160, noted that revision of TERPS chapter 12 has been on the AFS IOU list for some time. Additionally, criteria are desperately needed for diverse vector evaluations for departures. Bill Mosley, ATO-120, briefed that sometimes turns below 400' are necessary for AT separation. Bill also briefed that DP's mandating turns at the MM are being reviewed for correction. Paul Best stated that controllers cannot issue turns below 400' unless a TERPS evaluation has been applied; perhaps this is a controller education issue. Tom Young noted that the pilots are caught in the middle; flight inspectors violate pilots when they turn prior to 400' and air traffic violates them when they don't turn. **Action: AFS-420 and ATO-120.**

MEETING 99-01: Bill Mosley, ATO-120, briefed that the issue concerning turns below 400 ft is being addressed within Air Traffic. ATO-100 has also published guidance to cease the use of MM's as turn points on DP's and to publish waypoints. Wally Roberts, ALPA, brought up the issue of radar vectors toward obstructions that penetrate the 40:1 departure OIS when the obstruction is not displayed on radarscopes. He requested that Bill work within ATO to more clearly define criteria for display of prominent obstructions on radar scopes. Don Pate, AFS-420, noted that the new departure criteria under development will address diverse vector areas (DVA) for departures below the MVA and for turns below 400 ft. ALPA agreed to offer AIM material for turns below 400 ft. Final resolution of this issue is dependent on revision of Order 8260.46 and Chapter 12 of TERPS. Three action items were assigned: 1) AFS-420 to track revision of Chapter 12 of TERPS. 2) ATO-120 to review policy for display of prominent obstructions on radarscopes, and, 3) ALPA to provide AFS-420 draft AIM material for turns below 400 ft. **Action: AFS-420, ATO-120, and ALPA.**

MEETING 99-02: Dave Eckles presented a status update paper prepared by Chuck Everest, AFS-420. TERPS Chapter 12 is under re-write and is currently undergoing FAA internal technical review. The final draft is expected to be circulated for formal comment in December, 1999. The 400' minimum turning altitude will remain as the standard in the

new criteria. The new criterion also addresses diverse vector areas for departures to reach the minimum vectoring altitude and criteria when a turn is necessary below 400'. The issue of radar display of obstructions was to be addressed by ATP-120; however a representative was not available for the meeting. AFS-420 also processed an AIM change on the subject for pilot clarification that was published last July. **Action AFS-420 and ATO-120.**

MEETING 00-01: Dave Eckles, AFS-420, presented a status update paper prepared by Chuck Everest, AFS-420. TERPS Chapter 12 has completed FAA internal technical review and the final draft will be included in TERPS Change 19. Change 19 is targeted for circulation for public comment in April, 2000. ATP-120 was to review air traffic policy for display of prominent obstructions on radarscopes and report; however, the ATP-120 representative retired. The new member took the IOU to report at the next meeting. **Action AFS-420 and ATP-120.**

MEETING 00-02: Bill Hammett, AFS-420 (ISI), briefed a status update paper prepared by Chuck Everest, AFS-420. AFS-420 believes that the language in Change 19 to TERPS and Order 8260.46A emphasizing that DP's require no turns below 400 above DER satisfies ALPA's original concerns on this issue and recommended closure of the Flight Standards portion of the issue. Wally Roberts, ALPA, recommended that AIM language be clarified and agreed to provide Steve Jackson, AFS-420, draft language for AIM publication. Insofar as the ATP-120 IOU to respond to ALPA's request for the policy for display of prominent obstructions on radarscopes, an air traffic representative was not present to discuss the issue. **Editor's Note:** ATP-402 provided a status update paper on the obstacle display issue after the meeting that included the following references:

1. *FAA Order 7210.3, Facility Operation and Administration, Section 8, Paragraph 3-8-3 states, "To reduce clutter and increase operational efficiency, limit data on display maps to the following (except for subparagraph o, facility AT managers may delete items not required). . ."* Included in the list of items are obstructions and prominent geographic features (islands, mountains, etc.).
2. *FAA Order 7210.3, Facility Operation and Administration, Section 8, Paragraph 3-9-5 provides the procedures used to establish Diverse Vector Areas (DVAs). FAA Order 7110.65, Air Traffic Control, Para 5-6-3c, Vectors Below Minimum Altitude: "At those locations where DVAs have been established, terminal radar facilities may vector aircraft below the MVA/MIA within those areas and along routes described in facility directives." Reference – FAAO 7210.3, Establishing DVAs, Para 3-9-5.*
3. *FAA Order 7110.65, Air Traffic Control, Para 5-6-3, Vectors Below Minimum Altitude: ". . .you may vector a departing IFR aircraft, or one executing a missed approach, within 40 miles of the antenna and before it reaches the minimum altitude for IFR operations if separation from prominent obstructions shown on the radar scope. . ."* Further,

ACTION: ALPA and ATP-120.

MEETING 01-01: Bill Hammett, AFS-420 (ISI), briefed that all action items required of the original issue paper have been addressed and recommended closure. The group concurred. **ACTION:** Closed.
